What is claimed is:

1. A multi-optical axis photoelectric sensor comprising:

a main element holder including a plurality of light guide housings each having an optical element therein, said main element holder having a first engagement portion;

an additional element holder including a plurality of light guide housings each having an optical element therein, said additional element holder having a second engagement portion capable of mechanically engaging and disengaging said first engagement portion of said main element holder;

wherein said main element holder and said additional element holder are disposed so that said plurality of light guide housings of said additional element holder and said plurality of light guide housings of said main element holder are disposed in a line when said additional element holder is engaged with said main element holder by said first and second engagement portions.

2. A multi-optical axis photoelectric sensor according to claim 1, wherein said plurality of light guide housings in said main element holder and said plurality of light guide housings in said additional element holder are equally spaced.

3. A multi-optical axis photoelectric sensor according to claim 1, wherein said second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement between said first engagement portion and said second engagement portion.

4. A multi-optical axis photoelectric sensor according to claim 3, wherein said relative movement includes movement of at least one of said main element holder and said additional element holder perpendicular to a longitudinal axis of at least one of said main element holder and said additional element holder.

5. A multi-optical axis photoelectric sensor according to claim 3, wherein said relative movement includes movement of at least one of said main element holder and said additional element holder parallel to a longitudinal axis of at least one of said main element holder and said additional element holder.

6. A multi-optical axis photoelectric sensor according to claim 1, wherein each of said optical elements has a coupling terminal extending backwardly from a rear

surface of said optical element, and said multi-optical axis photoelectric sensor further comprises:

a main circuit board disposed at a rear surface of said main element holder; and

an additional circuit board disposed at a rear surface of said additional element holder,

wherein said main circuit board and said additional circuit board are formed with holes therein and said coupling terminal of one of said optical elements is respectively disposed in one of the holes and respectively contacts at least one of said main circuit board and said additional circuit board.

7. A multi-optical axis photoelectric sensor according to claim 6, wherein said main circuit board and said additional circuit board are electrically coupled to each other through a connector.

8. A multi-optical axis photoelectric sensor according to claim 1, wherein each said optical element in said main element holder and said additional element holder includes a coupling terminal extending outwardly from a side surface of said optical element, and said multi-optical axis photoelectric sensor further comprises:

a first circuit board disposed parallel to the light guide housings arranged in said main element holder; and

an additional circuit board disposed parallel to the light guide housings arranged in said additional element holder,

wherein said first circuit board and said additional circuit board include notches therein and said coupling terminal is respectively disposed in one of the notches and respectively contacts at least one of said first circuit board and said additional circuit board.

9. A multi-optical axis photoelectric sensor according to claim 8, further comprising

a control board including a control circuit for said multi-optical axis photoelectric sensor, said control board being disposed along a rear surface of said main element holder so that said control board is orthogonal to said first circuit board.

10. A multi-optical axis photoelectric sensor according to claim 8, wherein said first circuit board and said additional circuit board are electrically coupled to each other through a connector.

11. A multi-optical axis photoelectric sensor

according to claim 9, wherein said first circuit board and said control board are electrically coupled to each other through a connector.

12. A multi-optical axis photoelectric sensor according to claim 1, wherein said optical element is a light emitting element.

13. A multi-optical axis photoelectric sensor according to claim 1, wherein said optical element is a light receiving element.

14. A multi-optical axis photoelectric sensor comprising:

a main element holder including a plurality of light guide housings each having an optical element therein, said light guide housings being arranged to allow light to pass through a substantially planar surface of said main element holder, said main element holder having a first engagement portion;

an additional element holder including a plurality of light guide housings each having an optical element therein, said light guide housings being arranged to allow light to pass through a substantially planar surface of said additional element holder, said additional element

holder having a second engagement portion capable of mechanically engaging and disengaging said first engagement portion of said main element holder; and

wherein said main element holder and said additional element holder are disposed so that said substantially planar surface of said main element holder and said substantially planar surface of said additional element holder are disposed in a common plane when said additional element holder is engaged with said main element holder by said first and second engagement portions.

15. A multi-optical axis photoelectric sensor comprising:

a first main element holder including a plurality of light guide housings each having an optical projecting element therein, said first main element holder having a first engagement portion;

a first additional element holder including a plurality of light guide housings each having an optical projecting element therein, said first additional element holder having a second engagement portion capable of mechanically engaging and disengaging said first engagement portion of said first main element holder;

wherein said first main element holder and said first additional element holder are disposed so that said

plurality of light guide housings of said first additional element holder and said plurality of light guide housings of said first main element holder are disposed in a first line when said first additional element holder is engaged with said first main element holder by said first and second engagement portions, said multi-optical axis photoelectric sensor further comprises:

a second main element holder including a plurality of light guide housings each having an optical receiving element therein, said second main element holder having a third engagement portion;

a second additional element holder including a plurality of light guide housings each having an optical receiving element therein, said second additional element holder having a fourth engagement portion capable of mechanically engaging and disengaging said third engagement portion of said second main element holder; and

wherein said second main element holder and said second additional element holder are disposed so that said plurality of light guide housings of said second additional element holder and said plurality of light guide housings of said second main element holder are disposed in a second line when said second additional element holder is engaged with said second main element holder by said third and

fourth engagement portions.

16. A multi-optical axis photoelectric sensor according to claim 15, wherein said plurality of light guide housings in said first and second main element holders and said plurality of light guide housings in said first and second additional element holders are equally spaced.

17. A multi-optical axis photoelectric sensor according to claim 15, wherein said second engagement portion of said first additional element holder and said first engagement portion of said first main element holder are engaged by relative movement between said first engagement portion and said second engagement portion, and said fourth engagement portion of said second additional element holder and said third engagement portion of said second main element holder are engaged by relative movement between said third engagement portion and said fourth engagement portion.

18. A multi-optical axis photoelectric sensor according to claim 17, wherein said relative movement between said first engagement portion and said second engagement portion includes movement of at least one of

said first main element holder and said first additional element holder perpendicular to a longitudinal axis of at least one of said first main element holder and said first additional element holder, and said relative movement between said third engagement portion and said fourth engagement portion includes movement of at least one of said second main element holder and said second additional element holder perpendicular to a longitudinal axis of at least one of said second main element holder and said second additional element holder.

19. A multi-optical axis photoelectric sensor according to claim 17, wherein said relative movement between said first engagement portion and said second engagement portion includes movement of at least one of said first main element holder and said first additional element holder parallel to a longitudinal axis of at least one of said first main element holder and said first additional element holder, and said relative movement between said third engagement portion and said fourth engagement portion includes movement of at least one of said second main element holder and said second additional element holder parallel to a longitudinal axis of at least one of said second main element holder and said second additional element holder.